Section II: Remarks

Claims 1-11 are pending.

Rejection of Claims and Transversal Thereof

In the April 23, 2009 Office Action:

claims 1, 2, 4-9 and 11 were rejected under 35 U.S.C. §102(b) as being anticipated by Hatter et al. (WO 01/41152); and

claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Hatter et al.

These rejections are respectfully traversed. The patentable distinctions of the pending claims over the cited references are set out in the ensuing discussion.

Rejection of Claims Under 35 U.S.C. §102

In the April 23, 2009 Office Action, claims 1, 2, and 4-11 were rejected under 35 U.S.C. §102(b) as being anticipated by Hatter et al. (WO 01/41152) (hereinafter Hatter). Applicants traverse such rejection.

Hatter relates to a process for reducing to metallic form a metal oxide present in spent nuclear fuel, the process comprising cathodically electrolysing the oxide in the presence of a molten salt electrolyte, the potential of the cathode being controlled so as to favour oxygen ionisation over deposition of the metal from the cations (e.g., Ca or Ba) present in the molten salt. The Hatter process thereby allows for the reduction of the metal oxide to a metallic form by the use of a single electrochemical process, with oxygen being produced as the only by-product.

It is initially noted that applicants discussed Hatter in the instant specification (and that one of the present applicants was a co-applicant of Hatter as well), and referring to Hatter stated that:

> "The present inventors, however, recognised that there is frequently the requirement, both within the nuclear industry and the wider chemical industry, for the separation of metals from mixtures of metal oxides, and that the established technologies within these industries often provide inadequate means for the performance of such separations." (see, the instant specification, page 3, lines 16-20) (emphasis added)

In other words, the present applicants, being applicants of the cited Hatter reference, are uniquely situated to identify the difference between their own prior work, as embodied in the cited Hatter reference, and their claimed invention of the instant application.

Knowing this, the fundamental difference between the presently claimed process and the process of Hatter is that the present invention is concerned with the separation of metals from mixed metal oxide samples by virtue of control of the potential difference, which allows for selective reduction of metal oxides, such that one oxide is reduced to the free metal whilst other metals remain as their oxides, whereas Hatter is not concerned with the control of potential for the purpose of selective reduction. In other words, the process which is disclosed in Hatter will simply result in the reduction to the corresponding metals of all metal oxides which are present in the sample being treated.

The Examiner contends that Hatter teaches the limitation that "the applied potential difference being such as to facilitate selective reduction of one metal oxide at the expense of other metal oxides," as claimed by applicants herein. Applicants vigorously disagree. The Examiner referred to page 2, lines 19-23 of Hatter to support this contention, which recite:

> "Accordingly, the present invention involves the use of a single electrochemical process to reduce the metal oxide fuel to a metallic form, with oxygen produced as the only by-product. It is important that the potential of the cathode is maintained and controlled so that only oxygen ionization occurs and not the deposition of the cations (eg Ca ions) in the fused salt."

It is well understood to those skilled in the art that the "potential" at the cathode, which is a measure of the individual potential at the cathode relative to a standard electrode, is **NOT** the same as "potential difference," which is a measure of the difference between the anode and the cathode

with respect to the electrolyte. Moreover, the molten salt electrolytes, $CaCl_2$ and $BaCl_2$, are not metal oxides. As such, this recitation in Hatter does not teach or suggest an "applied potential difference being such as to facilitate selective reduction of one metal oxide at the expense of other metal oxides," as claimed by applicants herein.

It is well established, as a matter of law, that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Clearly, Hatter does not satisfy this requirement.

Considered *in toto*, applicants have overcome the problems of their own prior art by applying a potential difference such as to facilitate selective reduction of one metal oxide at the expense of other metal oxides. Hatter does not expressly or inherently teach the application of the potential difference and as such, Hatter does not anticipate applicants' claims 1, 2 and 4-11. Withdrawal of the rejection is respectfully requested.

Rejection of Claims Under 35 U.S.C. §103

In the April 23, 2009 Office Action, claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Hatter. Applicants traverse such rejection.

As introduced hereinabove, Hatter does not teach or suggest each and every limitation of applicants' claim 1, from which claim 3 depends, specifically the control of the potential difference, which allows for selective reduction of metal oxides. Nor does Hatter make obvious applicants' claim 1. The mere fact that Hatter can be modified to include the control of the potential difference does not render the resultant modification obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). It took approximately three years for applicants, who include a co-applicant of Hatter, to figure out that controlling the potential difference would allow for the separation of metals. Clearly, the control of the potential difference was not an obvious modification that would have been predictable to one of ordinary skill in the art.

Going forward, the Examiner is respectfully reminded that the key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. §103 should be made explicit. The Court quoting *In re Kahn,* 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "'[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" *KSR*, 82 USPQ2d at 1396.

In conclusion, claim 1 and hence claim 3 are not obvious in view of Hatter. Applicants respectfully request withdrawal of the rejection of claim 3 under 35 U.S.C. §103(a) as being obvious in view of Hatter.

Petition for Extension of Time/Fees Payable

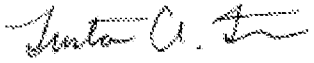
Applicants hereby petition for a one (1) month extension of time, extending the deadline for responding to the April 23, 2009 Office Action from July 23, 2009 to August 24, 2009 (August 23, 2009 is a Sunday). The fee of $130.00 specified in 37 CFR §1.17(a)(1) for such one (1) month extension is hereby enclosed.

The total fee of $130.00 is being paid by Electronic Funds Transfer. Authorization is hereby given to charge any deficiency in applicable fees for this response to Deposit Account No. 13-4365 of Moore & Van Allen PLLC.

Conclusion

Based on the foregoing, claims 1-11 are in form and condition for allowance. If any additional issues remain, the Examiner is requested to contact the undersigned attorney at (919) 286.8090 to discuss same.

Respectfully submitted



Date: August 20, 2009

By: _____

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